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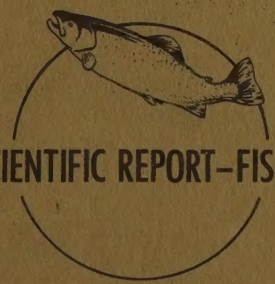
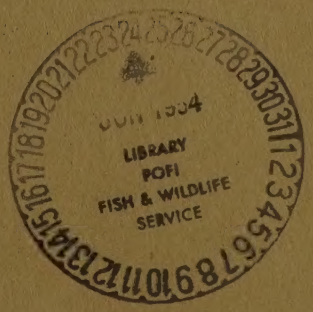
SELECTED BIBLIOGRAPHY ON APPLICATIONS OF ELECTRICTY IN FISHERY SCIENCE



SPECIAL SCIENTIFIC REPORT–FISHERIES No. 127



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

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United States Department of the Interior, Douglas McKay, Secretary,
Fish and Wildlife Service, John L. Farley, Director

SELECTED BIBLIOGRAPHY ON THE APPLICATIONS OF ELECTRICITY IN FISHERY SCIENCE

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SELECTED BIBLIOGRAPHY ON THE APPLICATIONS OF ELECTRICITY IN FISHERY SCIENCE

Applications of electricity in commercial fishing, in fish-salvage operations, and as a research tool are growing rapidly in importance. Unfortunately, it has been difficult for investigators to review progress and accomplishments in this field since the literature, although fairly extensive, is widely scattered. Furthermore, knowledge of a rather complex array of technical subjects in (among others) the fields of physiology, fishery biology, electronics, and electrical engineering has been required for the development of successful applications. Investigators have, therefore, been hampered frequently by a lack of familiarity with the literature outside their immediate field of specialization. It is the purpose of this publication to present a selected list of technical, semi-popular, and popular reports, both published and unpublished, which may prove useful to those who are attempting to apply electricity to a specific fishery problem.

This bibliography includes reports appearing through the calendar year 1953 which are directly or indirectly related to the application of electric current in or to the water for the purpose of influencing or controlling fish movement or for capturing fishes or other aquatic organisms. Similar uses of light and sound are not included. Coverage of the literature on fundamental researches of the reactions of fishes to electrical stimuli is comprehensive. A selection of references in the general field of electrophysiology and on the reactions of organisms other than fishes to electrical stimulation is included. Further information on the reactions of plant and animal tissues and of whole organisms (other than fishes) to electrical stimuli may be had by consulting extensive bibliographies presented in the following papers cited in this report: Gerard 1942; Scheminzky 1923; Scheminzky, Scheminzky, and Bukatsch 1941; and Wallengren 1903a.

Coverage of technical and popular accounts of specific applications of electricity in fishery science is likewise comprehensive; both engineering and biological considerations are contained in some of these reports. Further selected reports have been included which may be of aid in instrumentation or which describe useful test instruments. A few papers are cited which discuss the general subject of electrostatic fields; others describe the characteristics of electrical fields in fluid media. Articles dealing specifically with the characteristics of electrical fields in natural waters and the modifying effects of varying natural conditions on these fields appears non-existent. Some information may be gleaned, however, from several of the reports cited herein which are concerned primarily with other topics.

In addition to the reference material previously indicated, a separate list is presented of patents granted by the United States

Patent Office which are pertinent to the subject of this report. This list is the product of an investigation conducted by the legal firm retained by Cook Research Laboratories, Inc., Chicago, Illinois, while under contract to the Fish and Wildlife Service. Presumably it records, among the several arts included, the most significant patents granted for "fish screens" and similar devices through the calendar year 1950. A subsequent search indicated that no further patents of this type were granted at least through 1952.

Nearly all of the citations presented have been checked for accuracy by comparison with the original articles or with suitable reproductions (photostats, microfilms, ...); five papers for which originals could not be located were checked against typewritten "record" copies. Those citations not verified by one of the two procedures are identified by an asterisk (*). Transliterations and translations of citations in Russian and Japanese have been verified by experts in those languages.

Several inconsistencies that will be apparent in the method of citation have been introduced to facilitate the location of the periodicals involved. City of publication is not usually given. It is included, however, for those foreign journals that are entered in the catalogs of certain libraries under place of publication. For some trade journals and non-technical publications, the date of the particular issue cited is given since that information is frequently more helpful than a knowledge of volume and issue number.

Following citations, references are given to known abstracts, summaries, reviews, reprintings, and available translations. Most summaries, reviews, and reprintings indicated in these annotations are not cited elsewhere in the body of the bibliography. Abstract systems referred to are as follows:

(1) Biological Abstracts, University of Pennsylvania, Phila., Pa.

(2) Commercial Fisheries Abstracts, U. S. Dept. of the Interior, Fish and Wildlife Service, Washington, D. C.

(3) World Fisheries Abstracts, Food and Agriculture Organization of the United Nations, Rome, Italy.

Desirable as it might be to subdivide this bibliography into sections under various subjects, that procedure proved impractical. Many of the references deal with a considerable diversity of subject matter. Any attempt at subdivision accordingly would entail an unreasonable amount of repetition or cross-referencing.

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Dept. of Cons., Cornell Univ., Dittoed, 2 pp.

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Dept. of Cons., Cornell Univ., Processed, 6 pp.

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PART III

Patents granted by the United States Patent Office

[Patents are first listed in numerical order with date patented, inventor's name, and title of disclosure given for each entry; following this, an alphabetical index is presented. Copies of these patents may be obtained at nominal cost from the United States Patent Office, Washington, D. C.]

Numerical list

No. 794,573 — Patented July 11, 1905

Inventor: Michael Ward
Title of disclosure: Apparatus for catching fish.

No. 855,588 — Patented June 4, 1907

Inventor: Thomas N. Prudden
Title of disclosure: Method and apparatus for protecting marine wooden structures.

No. 978,872 — Patented Dec. 20, 1910

Inventor: Charles K. Freer
Title of disclosure: Device for driving fishes.

No. 1,269,380 — Patented June 11, 1918

Inventor: Henry T. Burkey
Title of disclosure: Electric fish-stop.

No. 1,292,246 — Patented Jan. 21, 1919

Inventor: Henry T. Burkey
Title of disclosure: Electric fish-stop.

No. 1,486,083 — Patented Mar. 4, 1924

Inventor: Charles Kaater Freer
Title of disclosure: Device for driving fishes.

No. 1,515,547 Patented Nov. 11, 1924

Inventor: Henry T. Burkey
Title of disclosure: Electric fish stop.

No. 1,838,981 Patented Dec. 29, 1931

Inventor: Jonas Edwin Anderson
Title of disclosure: Electrical fishing apparatus.

No. 1,882,482 Patented Oct. 11, 1932

Inventor: Henry Theodore Burkey
Title of disclosure: Fish diverter for irrigation ditches, flumes, natural waterways, and the like.

No. 1,962,420 Patented June 12, 1934

Inventor: William J. Bradley
Title of disclosure: Electric insect exterminator.

No. 1,974,444 Patented Sept. 25, 1934

Inventor: Henry T. Burkey
Title of disclosure: Method of and apparatus for electrically diverting fish.

No. 1,980,452 Patented Nov. 13, 1934

Inventors: Reuben S. Tice and Mary H. Littlefield
Title of disclosure: Fishing method and apparatus.

No. 2,010,601 Patented Aug. 6, 1935

Inventor: Donald H. Loughridge
Title of disclosure: Electric fish stop.

No. 2,146,105 Patented Feb. 7, 1939

Inventor: Lin E. Baker
Title of disclosure: Method and device for handling and conservation of fish and the like.

No. 2,163,282 Patented June 20, 1939

Inventor: Knut Hovden
Title of disclosure: Means for catching fish.

No. 2,187,400 Patented Jan. 16, 1940

Inventor: Sam Palos
Title of disclosure: Electrocuting trap.

No. 2,193,915 Patented Mar. 19, 1940

Inventor: Lin E. Baker
Title of disclosure: Apparatus for underwater electric barrier.

No. 2,194,018 Patented Mar. 19, 1940

Inventor: Eugene Grooms
Title of disclosure: Floodgate for electric fences.

No. 2,233,045 Patented Feb. 25, 1941

Inventors: Franklin Samuel Bonner and Mort Roy Miller
Title of disclosure: Electrical fish screen.

No. 2,238,897 Patented Apr. 22, 1941

Inventor: Ramon Gomez
Title of disclosure: Electrolytic fishing.

No. 2,271,569 Patented Feb. 3, 1942

Inventor: Sam Palos
Title of disclosure: Electrocuting trap.

No. 2,426,037 Patented Aug. 19, 1947

Inventors: John R. Mahoney and Harry J. Bichsel
Title of disclosure: Electronic control device for forming impulses.

No. 2,441,219 Patented May 11, 1948

Inventor: Leo T. Critchlow
Title of disclosure: Eel trap.

Alphabetical index

Patentee	Patent Number
Anderson	1,838,981
Baker	2,146,105
Baker	2,193,915
Bonner et al	2,233,045
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Burkey	1,292,246
Burkey	1,515,547
Burkey	1,882,482
Burkey	1,974,444
Critchlow	2,441,219
Freer	978,872
Freer	1,486,083
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Grooms	2,194,018
Hovden	2,163,282
Loughridge	2,010,601
Mahoney et al	2,426,037
Palos	2,187,400
Palos	2,271,569
Prudden	855,588
Tice et al	1,980,452
Ward	794,573

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